APRIL/MAY 2024

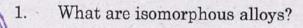
DOPH34B/GEPH34B — MATERIAL SCIENCE

Time: Three hours

Maximum: 75 marks

SECTION A — $(10 \times 2 = 20 \text{ marks})$

Answer ALL questions.



- Define phase equilibria.
- 3. Define stress and strain.
- 4. What are ceramic phase diagrams?
- 5. Give any two applications of biomaterials.
- 6. Write short notes on Protein.
- Define SHM wave.
- 3. Differentiate linear and non-linear crystals.
- 9. Draw a neat sketch of PN junction diode.
- List any two application of supercapacitors.

SECTION B — $(5 \times 5 = 25 \text{ marks})$

Answer ALL questions.

11. (a) Explain briefly about Eutectoid and Peritectic reactions.

Or

- (b) Illustrate the Concurrent phase transformations of ceramics with neat diagram.
- 12. (a) Write notes on advanced ceramics and ceramic phase diagrams.

Or

- (b) Explain the Deformation of polymers.
- 13. (a) Describe the function of Biomaterials for imaging and diagnosis.

Or

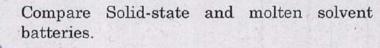
- (b) Discuss about Chemical structure and property of biomaterials.
- 14. (a) Discuss the process of Optical Mixing in NLO crystals.

Or

(b) Explain Parametric Generation of Light.

15. (a) Discuss the Polymer composites for solar cells and their application.

Or



SECTION C — $(3 \times 10 = 30 \text{ marks})$

Answer any THREE questions.

- 16. Describe the Development of microstructure in eutectic alloys.
- 17. Elaborate the functions of Polymeric biomaterials in biomedical applications.
- 18. Discuss about the Polymerization mechanism and structures of polymers.
- 19. Explain nonlinear optical materials.
- 20. Write an detailed note on device fabrication and characterization of solar cells.